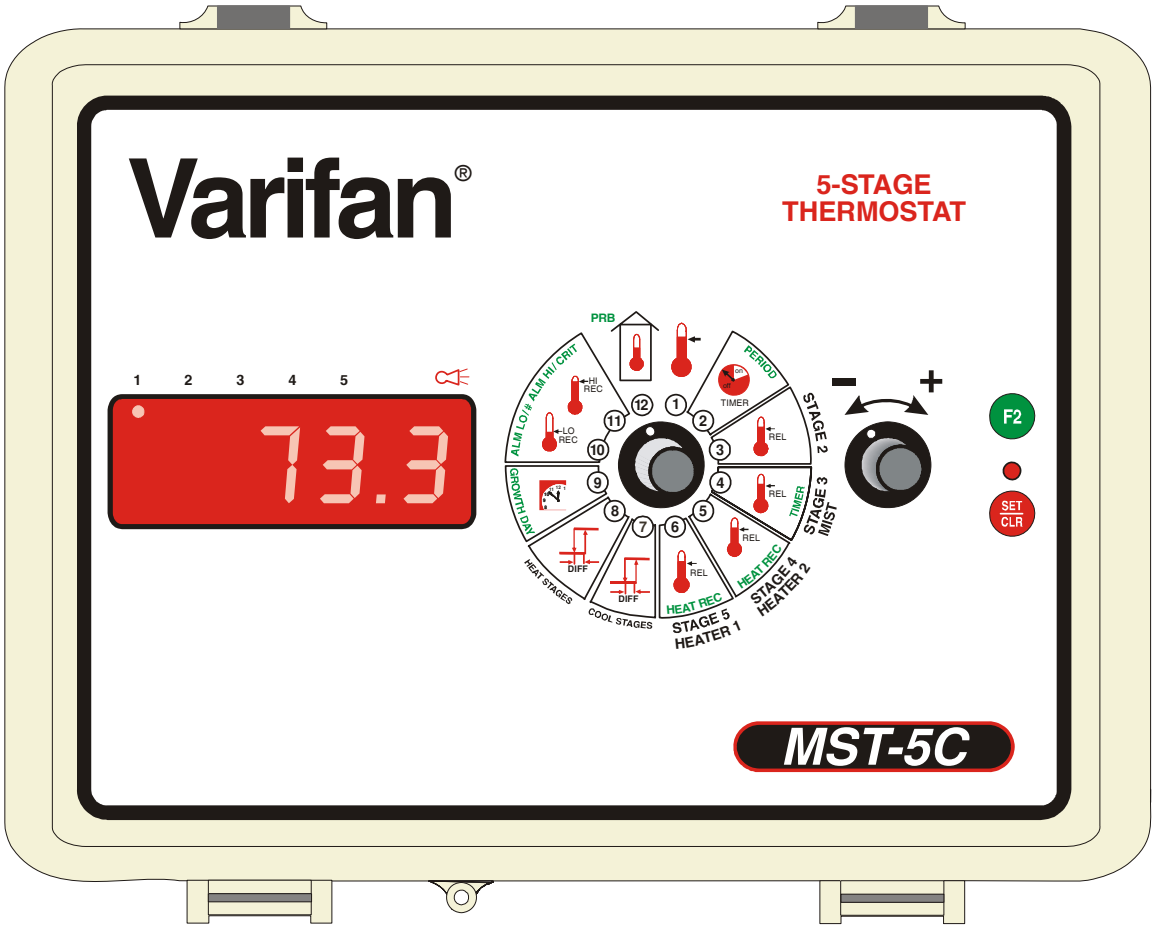
MANUAL
MST-5C



Installation / User's Guide

ATTENTION ELECTRICIAN
SEE WIRING DETAILS ON PAGES A-3 TO A-5 AND
ADDITIONAL INFORMATION IN SECTION B

WARNINGS AND PRECAUTIONS

Although the manufacturer has made every effort to ensure the accuracy of the information contained herein, this document is subject to change without notice due to ongoing product development.

WARNINGS AND PRECAUTIONS

Equipment, probe failure, blown fuses and/or tripped breakers may prove harmful to the contents of the building. Therefore it is strongly recommended to install backup devices and alarm or warning devices. Spare equipment should also be available at the owner's site. Equipment manufactured by the manufacturer is protected against normal line surges. High surges caused by thunderstorms or power supply equipment may damage this equipment. For added security against line voltage surges it is recommended that surge and noise suppression devices be installed at the electrical distribution panel. Use of shielded cable for probes is recommended for protection against lightning. These devices are available from most electrical supply distributors.

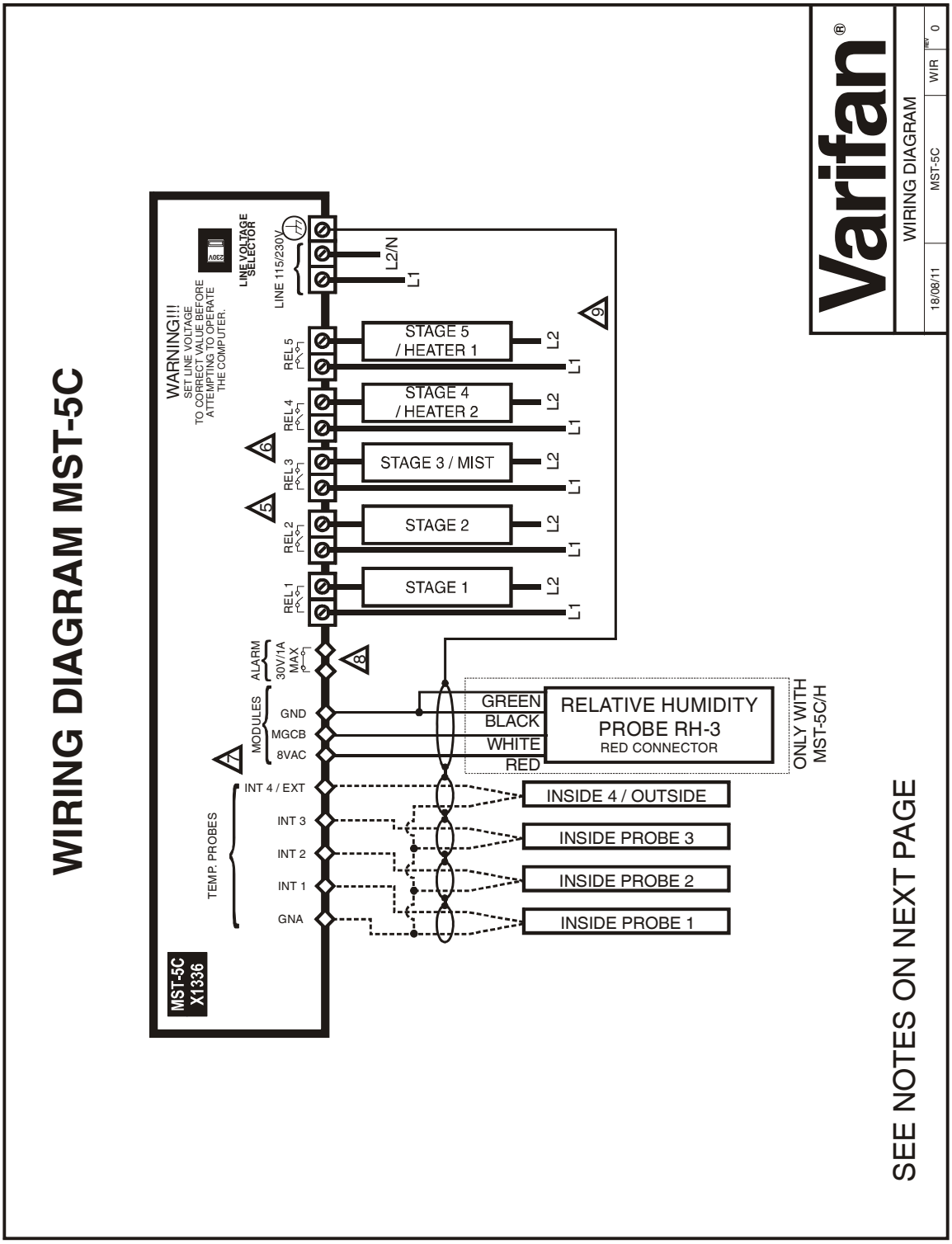
RECOMMENDATIONS

The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Furthermore the manufacturer recommends testing all the functions and equipment connected to the MST-5C, including the alarm system and backup devices, after installation, after changes to the installation and every month after that.

Fuse verification and replacement, as well as the proper setting of control values shall be the responsibility of the owner of this equipment.

WIRING DIAGRAM MST-5C SECTION A

MST-5C WIRING DIAGRAM



MST-5C
Electrician's notes

1 ---------- (PROBE WIRING) SHIELDED WIRE AWG #22 WITH 16/30 STRANDING, 500ft (150m) MAXIMUM LENGTH (Ex.: DECA 73-310).
For other probe, refer to specific probe manual for appropriate maximum length and wire size or use AWG #22, 500ft (150m) MAXIMUM LENGTH.

2 ———— (COMMUNICATION WIRING) SHIELDED LOW CAPACITANCE WIRE, (Capacitance between conductors @ 1Khz = 24pF/ft), TWISTED PAIR (8 twist/ft), AWG #22, 820ft (250m) MAX LENGTH (Ex.: BELDEN 8761).

3 ▬▬▬ HIGH VOLTAGE WIRE INSTALLED ACCORDING TO LOCAL WIRING CODE.

4 INSTALL LOW VOLTAGE WIRES (PROBES OR COMPUTER LINK WIRES) AT LEAST 12in. (30cm) AWAY FROM HIGH VOLTAGE WIRES (120/230VAC, 24VDC). ALWAYS CROSS HIGH AND LOW VOLTAGE WIRES AT A 90-DEGREE ANGLE.

△5 RELAYS: 10A @ 240VAC RESISTIVE, MOTOR 1HP @ 240VAC, 1/2HP @ 120VAC AT EACH OUTPUT.

△6 MAXIMUM 2 WIRES OF SAME SIZE PER BLACK TERMINAL, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #22.

△7 1 WIRE ONLY PER GREEN TERMINAL. USE WIRE CONNECTOR IF YOU WANT TO CONNECT MORE THAN 1 WIRE, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #28.

△8 CHECK INSTALLATION GUIDE FOR ALARM WIRING.

△9 USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT THE SHIELD TO GROUND PLATE⏚. NEVER LEAVE THE SHIELD UNCONNECTED AT BOTH ENDS. NEVER CONNECT BOTH ENDS OF THE SHIELD TO GROUND PLATE⏚. THE USE OF A SHIELD FOR ALL PROBES IS **MANDATORY**.

SECTION B

INSTALLATION
MST-5C
SECTION B

This section will inform the electrician on proper wiring and installation procedures for the MST-5C.

The manufacturer recommends that the following installation instructions to be followed as closely as possible, and that all work be performed by a certified electrician. Failure to do so may void the warranty.

Unpacking

Unpack the MST-5C and inspect contents for damage. Should the contents appear to be damaged, contact your local distributor to return the equipment.

The package should contain the following standard items:
1 MST-5C control (or MST-5C/H which includes a port for humidity probe)
4 Brackets / 4 screws
1 2004-10K temperature probe
1 Installation / User's Guide

Mounting Hardware Required

This is the list of the mounting hardware needed, which is not included with the product:

Shielded two-wire cable, AWG #22 (to extend probes).
Shielded two-wire twisted pair cable, AWG #22 (used for communication) see electrician notes for capacitance selection.
4 screws (to hang the unit onto the wall).
Screwdrivers.
Soldering iron kit or approved sealed connectors.
Drill and hole saw kit

General installation guidelines

MST-5C Control

- It is recommended to install the unit in a hallway to limit the MST-5C exposure to noxious gases.
- In order to avoid condensation problems inside the controller, it is recommended to install the MST-5C on an inside wall. If it is not possible, use spacers to have an air gap between the wall and the MST-5C.
- It is required to install the MST-5C side up with the cable entry holes facing down.
- The enclosure is watertight, but do not spray water or immerse the MST-5C in water. Cover it carefully with plastic when cleaning the room.
- The MST-5C should be installed in easy access location but away from damaging elements (heat, cold, water, direct sunlight, …).
- Do not drill the face, the side, the top or the rear of the control.
- Do not install the MST-5C control near high voltage equipment, power supply or transformer.

Electrical Cables

- All electrical cables must be installed according to local wiring codes.
- All cable shields must be connected to the MST-5C power ground only, except for the cable connected to the optional PC interface. The shield is needed to protect the MST-5C and the modules against any electromagnetic interference generated by lightning or nearby operating machinery.
- Never use the shield as a conductor.
- Connect only one end of the shield to the ground of the MST-5C.
- Use separate conduit for the low voltage cables (communication and probes) and the high voltage cables. There must be at least 1 foot (30 cm) between low voltage and high voltage conduits.
- If a low-voltage cable has to cross over a high voltage cable, make this crossing at 90°.
- All cable connections must be soldered or done with approved sealed connectors.
- Probe cables must be 500’ (150m) or less.
- Communication cables must be 820’ (250m) or less.
- It is prohibited to use overhead cables outside the building.

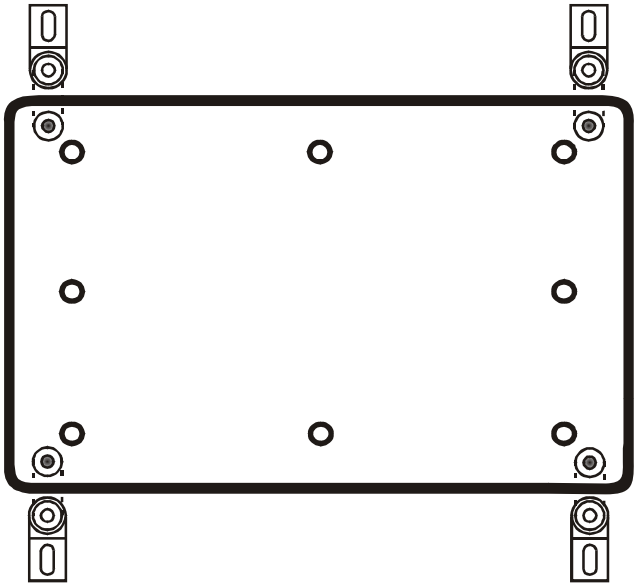
Electrical Power

- Protection from electrical surge should be included in the planning of each installation.
- It is strongly recommended to have a backup power source to ensure life-sustaining conditions in case of power failure (see figure 4).
- It is also strongly recommended to put a backup thermostat to sufficient fan and heating system parallel to the MST-5C module output (see figure 5).
- The backup system and alarm must be thoroughly tested and verified as working properly before using the ventilation system.

Mounting

- The enclosure must be mounted in a location that will allow the cover to be completely opened right up against the wall.
- Fasten the four brackets to the four mounting holes on the back of the enclosure, using the four screws provided with the brackets.
- Then mount the enclosure on the wall by inserting screws through the brackets' adjustment slots, into the wall. Make sure to position the enclosure so that all wires extend out of the bottom section of the enclosure.
- The bracket slots also serve to adjust the position of the controller.
- Once you have adjusted the controller position, tighten the four mounting screws.

FIGURE NO. 1 Mounting Position and Devices



SECTION B

Connection Procedure

Detailed Wiring Diagrams

Typical Sensor Wiring for Probes

The inside temperature sensor should be located in the area which gives the most accurate temperature reading to achieve optimum ventilation. The sensor should also be connected to the MST-5C with a shielded two-wire cable. It should be located in an area protected from operating machinery, animal bites, personnel or anything that could damage the sensor. See also “General installation guidelines”.

The outside temperature sensor should be installed in a location which is not influenced by heat generated from inside the building or direct sunlight. It should also be protected from physical damage.

FIGURE NO. 2 Typical Temperature Probe Wiring

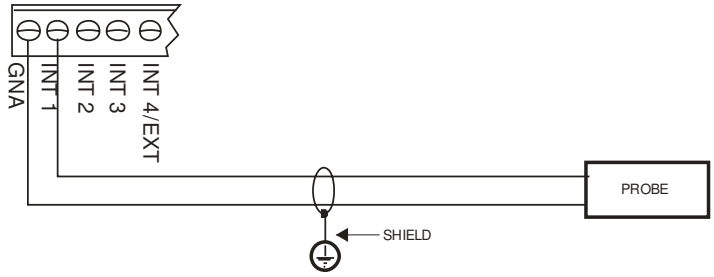
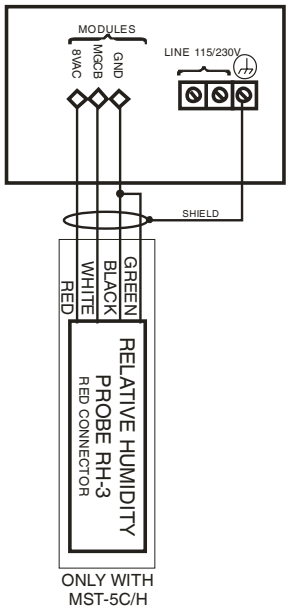


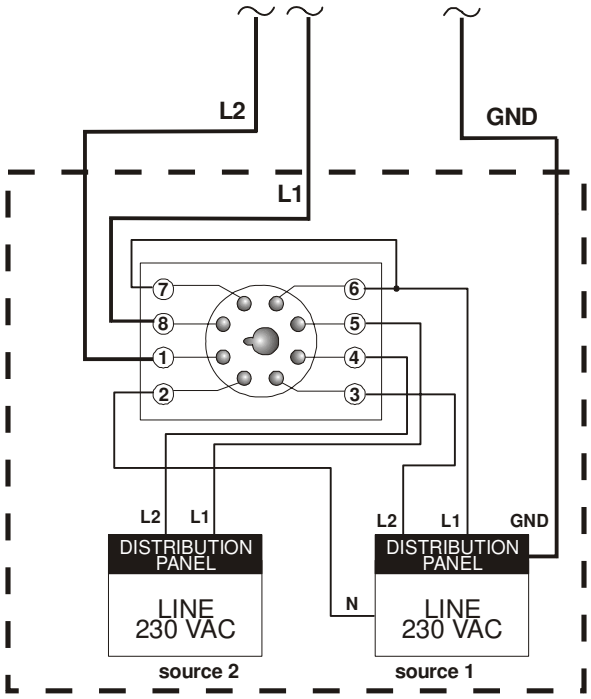
FIGURE NO. 3 Typical Humidity Probe Wiring

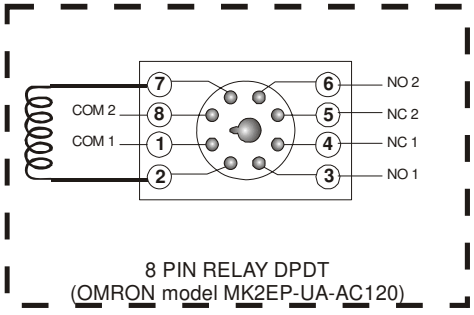


Typical Power Backup Wiring

A backup relay (DPDT) connects to the power source 1 in normal operation but will switch to the power source 2 if source 1 is disabled. The backup relay should be selected to ensure it is able to support the required power load.

FIGURE NO. 4 Typical Power Backup Wiring

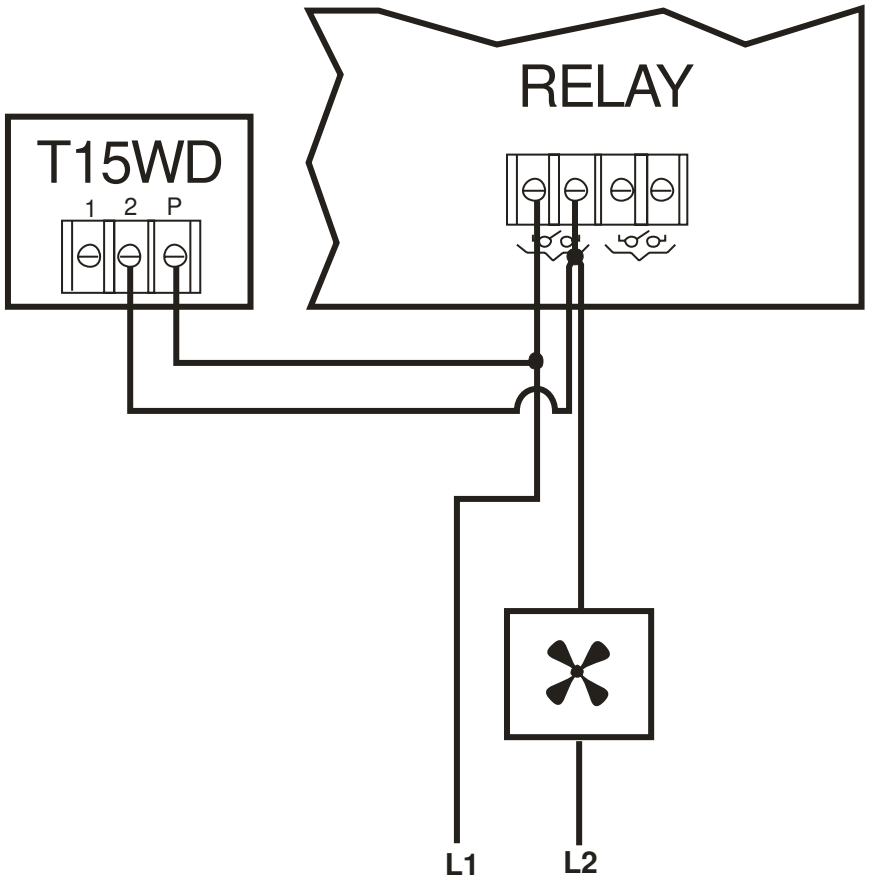




Typical Thermostat Backup Wiring

If the MST-5C fails, the backup thermostats will activate the dedicated fan or heater as soon as temperature reaches the set point of the thermostat. The thermostat must be accessible for adjustment and must be set at 3 to 5 degrees above the fan's relative set point or 3 to 5 degrees under the heater relative set point.

FIGURE NO. 5 Typical Thermostat Backup Wiring on Relay



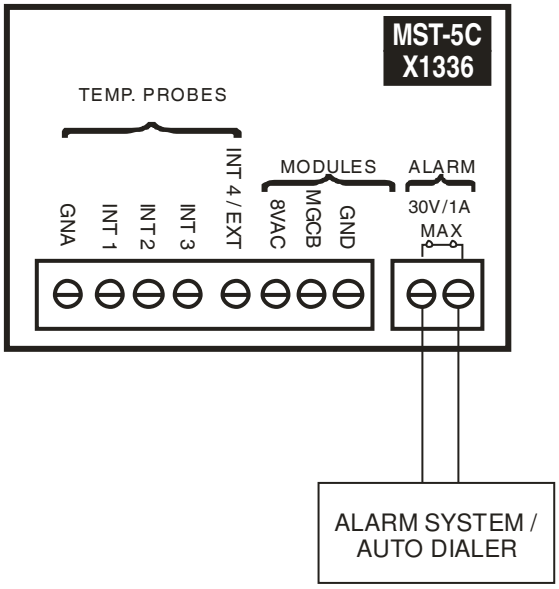
Typical Alarm Connection Wiring

The MST-5C provides a normally closed dry contact to set off an alarm in case of a low or high temperature condition occurs. Moreover, this same contact can be used to signal a power failure or other malfunctions. It may be connected to an alarm system or directly to a siren and /or auto-dialer.

Make the normally closed (NC) connections as indicated in figure 6.

The relay will activate 6-8 seconds after an alarm is triggered.

FIGURE NO. 6 Typical Alarm Connection Wiring



Powering Up Procedure

Once the MST-5C is properly mounted on the wall and all modules and sensors connected to the terminal block, perform the following step:

Verify all Connections

Seal all cable entry holes.

Hermetically Close the MST-5C

Close the front panel.

Put the power on

Secure the front panel with a lock

Downloading the Configuration

When upgrading your system with a new configuration, you will have to download the configuration.

There are two ways to download a configuration in the MST-5C controller.

1) Downloading by powering down.

A. Ensure the power source of the MST-5C is OFF (flip the circuit breaker on the distribution panel).
B. Remove the faceplate screws and lift up the cover.
C. Insert the configuration chip (MMX) into the socket of the main board.
D. Switch on the power source. The display on the front panel should indicate dnLd for approximately 15 seconds. If dnLd is not displayed, try one more time. If dnLd is still not displayed, remove and replace the configuration chip (MMX).
E. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the MST-5C starts up and executes the configuration.

2) Downloading while the MST-5C is powered up.

A. Remove the faceplate screws and lift up the cover.
B. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.
C. Adjust the **MMX Detected** parameter to dnLd and press the SET/CLR button. The display on the front panel should indicate dnLd for approximately 15 seconds. If dnLd is not displayed, try one more time. If dnLd is still not displayed, remove and replace the configuration chip (MMX).
D. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the MST-5C starts up and executes the configuration.

WARNING: During this procedure, some components are live and can be dangerous if touched.

Uploading the Configuration

It is possible to upload a configuration into a configuration chip (MMX) in order to save parameters and setup or to backup the configuration.

Here's the procedure to upload a configuration.

A. Make sure that the MST-5C is powered up.
B. Remove the faceplate screws and lift up the cover.
C. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.
D. Adjust the **MMX Detected** parameter to UPLd and press the SET/CLR button. The display on the front panel should indicate UPLd for approximately 15 seconds. If UPLd is not displayed, try one more time. If UPLd is still not displayed, remove and replace the configuration chip (MMX).
E. When the uploading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the MST-5C will continue to execute the configuration.

WARNING: During this procedure, some components are live and can be dangerous if touched.

MST-5C Compatible Probes

This is the list of all compatible probes that can be connected with MST-5C control with a short description of their function.

- **Temperature probe 2004-10K (black cap)**

Temperature probe with a temperature range of -58 to 140°F (-50 to 60°C).

- **Relative humidity probe RH-3**

Relative humidity probe with a measuring range of 0 to 100 RH% (red connector).

MST-5C Compatible Modules

This is the list of all compatible modules that can be connected with MST-5C control with a short description of their function.

Computer interface

- **NET-IN2 Communication Module** (Module inserted into the controller to communicate with the computer interface)
- **RF-IN Communication Module** (Module inserted into the controller for a wireless communication with the computer interface)

Specifications

Storage temperature	-4°F to 131°F (-20°C to 55°C)
Operating temperature	32°F to 113°F (0°C to 45°C)
Humidity	90% maximum Non-condensing
Weight	2,4 lb (1,1 kg)
Size	9" x 7" x 4 3/4" (22.8 cm x 17.7 cm x 11.5 cm)
Protection index	IP 66
Warranty	2 years
POWER SUPPLY	
Operational voltage range (SW3 @ 115V)	92 to 125VAC
Operational voltage range (SW3 @ 230V)	184 to 250VAC
Operational frequency range	45 to 65 Hz
Power supply circuit consumption (CPU Board)	20 W maximum
SOURCE 8VAC	
Voltage Range	6.5 to 13VAC
Maximum current allowed	50mA
PROBE INPUTS	
Temperature probe	2004-10K
Maximum wire length	500 feet (150 m)
Recommended wires	2 conductors, stranded, shielded, AWG #22
ALARM RELAY	
Maximum current	1 A at 30VDC
Delay before activation	Between 6 and 8 seconds
OUTPUT RELAYS	
Maximum Current	1HP @ 240VAC, 1/2HP @ 120VAC, 10A@240VAC
Caution Notice	These relays are rated by UL and CSA at 1HP @ 240VAC, 1/2HP @ 120VAC. However, for outputs requiring frequent activation (ex: minimum ventilation fans working on a timer) it is recommended not to use more than 1/2HP @ 240VAC, 1/4HP @ 120VAC per relay.
COMMUNICATIONS PORT (MGCB)	
Maximum wire length (2400 bps)	820 feet (250 m)
Maximum wire length (19200 bps)	6.5 feet (2 m)
Recommended wire	2 strands, twisted pair, low capacity, shielded, AWG #22

Important Notice:

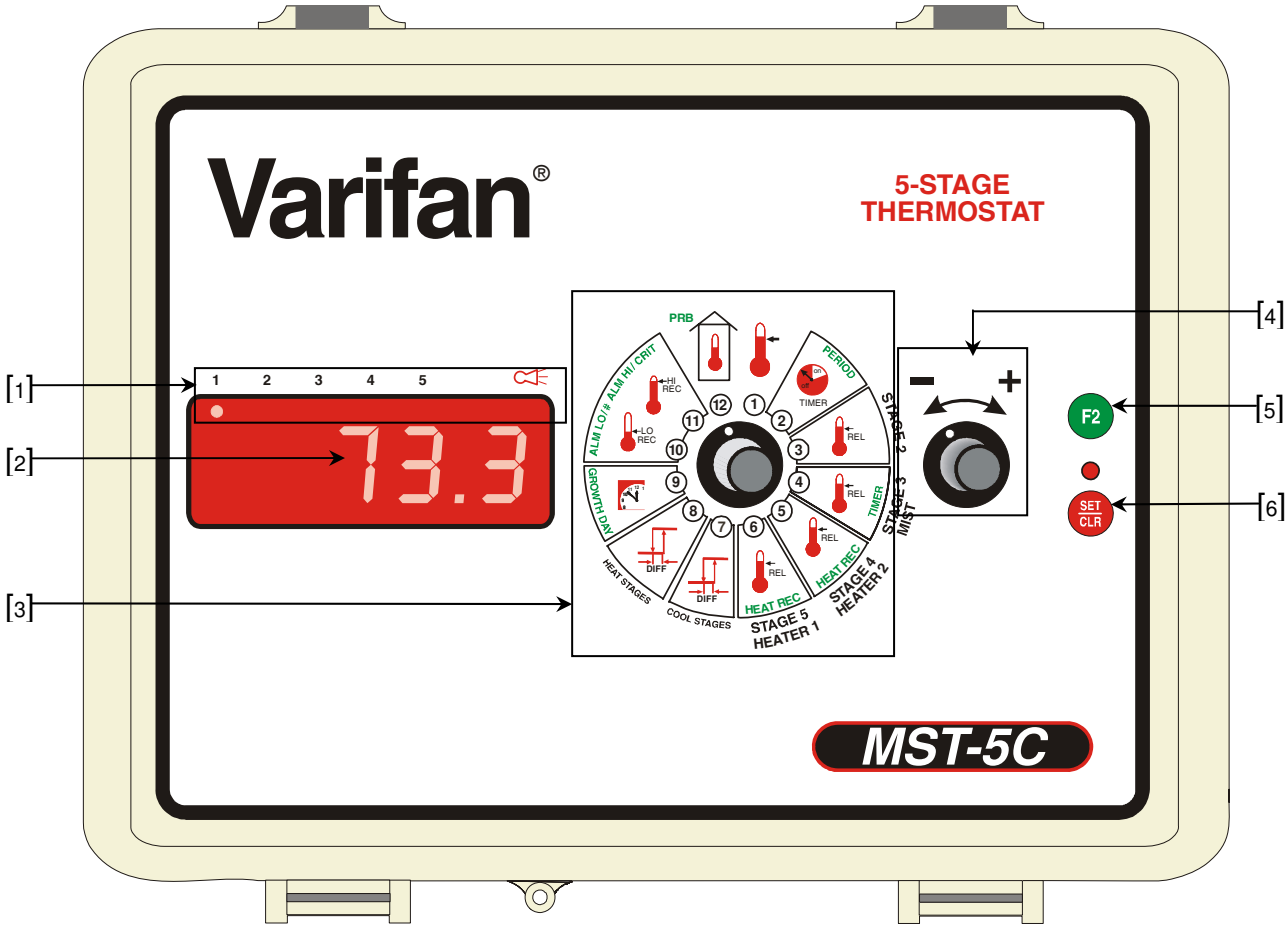
- It is important to have a backup system in case of a system failure.
- Low-voltage and high-voltage wire must be passed through different conducts at least 1 foot (30 cm) apart. If low-voltage and high-voltage conduits must be crossed, the crossing must be at a 90-degree angle.
- All wiring must be made by a certified electrician and conform to local electrical regulations.

Troubleshooting

SYMPTOM	CAUSE	REMEDY
Temperature probe reads *LO*	Temperature is below -58°F (-50°C). Probe is disconnected or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Temperature probe reads *HI*	Temperature is above 140°F (60°C). Probe is short circuited or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Displays are blank	MST-5C is not powered. Flat cable between the main and top boards of the MST-5C is disconnected.	Make sure the control is powered. Make sure the flat cable is connected. Make sure the fuse is correct.

USER'S GUIDE
MST-5C
SECTION C

Control Description



SECTION C

1. Output LED
Those LED indicate the status of an output. A LED comes ON whenever the respective output is active.

2. LED Status Windows
The LED status window features a 5 digit LED readout display of temperature in Fahrenheit or Celsius, or other programmable settings. After a setting is selected, its value appears on the LED display. If the value is flashing, it can be changed with the value setting button.

3. Parameter Dial
This button is used to select parameters or parameter groups.

4. Value Setting Button
This button is used to increase or decrease the value on the LED window. Turn it clockwise to increase the value. Turn it counter clockwise to decrease the value.

5. F2 Button
This button is used to access to secondary function of a parameter group (appears in green around the parameter dial).

6. SET/CLR Button
This button is used to acknowledge a function, set a value (clock, curves) or to clear values (min/max).

Input/Output Table

Inputs	Qty	Outputs	Qty
Inside Temperature	1 to 4	ON/OFF Stage	2 to 5
Outside Temperature	Up to 1	Mist	Up to 1
Relative Humidity	Up to 1	Heater	Up to 2
		Alarm	1

Equipment

Item	Description	Qty
MST-5C	5 Stage Thermostat, 5 On/Off Outputs	1
2004-10k	Temperature Sensor - Black (-58°F to 140°F) (-50°C to 60°C)	Up to 4
RH-3	Humidity Sensor - Red Connector (0RH% to 100RH%)	Up to 1

Configuration Versions

Version	Date	Min. Proc Version.	Modification
V0	03/26/2010	2	New.
V1	07/22/2011	5	Add humidity probe and stage 3 humidity shutoff. Add wireless communication support. Change position of 2 parameters.
V2	08/31/2011	5	Correction on outside temperature display when using the Celsius temperature unit.
V3	10/26/2012	5	Add Load delay for non-heater relays.

Ventilation system overview

The MST-5C uses up to 4 inside temperature probes, an outside temperature probe and a relative humidity probe to control 5 on/off stages. Stage 1 can operate according to a timer when temperature is under its activation set point. The third on/off stage can be used as a mist stage or as a cooling stage. That stage will operate according to its timer when its activation temperature is reached and can be shutoff if relative humidity is high. The last two on/off stages can operate as heaters or cooling stages. Heaters can operate according to the sensors selected by the user.

When a temperature probe is defective (short-circuited or unplugged), the MST-5C controller will not consider that probe in the average temperature and the alarm will sound. An alarm check will be made to check for high/low temperature and defective probes. The outside temperature may increase the high alarm threshold. The alarm will also activate if the difference between any two inside probes is too great.

Normal Mode Settings

Set Point (POS 1)

Main Set Point

This is the temperature goal for the room, the activation temperature for stage 1 and the reference temperature for all relative settings. The **Main Set Point** will follow its growth curve when the **Growth Day** is not [OFF] and the ***MSP Curve*** option is set to [On]. The growth curve is composed of four day-points and four temperature-points. To adjust these points, press the [SET/CLR] button. Then select the point to adjust using the [F2] button and adjust it with the adjustment knob. See the **Additional information on parameters** section for more information on the growth curve. The **Main Set Point** is adjusted in 0.1° increments from -40.0°F to 100.0°F (-40.0°C to 37.8°C).

Stage 1 (POS 2)

Stage 1 Cycle

This parameter is used to establish the duration of the run time for the stage 1 timer. When the **Average Temperature** is below **Main Set Point**, stage 1 will be activated for a percentage (**Stage 1 Cycle**) of the **Stage 1 Period**. If **Stage 1 Cycle** is set to OFF, stage 1 will never activate below **Main Set Point**. If **Stage 1 Cycle** is set to ON, stage 1 will be continuously activated below **Main Set Point**. This parameter is adjusted in 1% increments from OFF, 1% to 99%, ON.

Stage 1 Period [PEr]

This parameter is used to establish the duration of the period for the stage 1 timer. When the **Average Temperature** is below **Main Set Point**, stage 1 will be activated for a percentage (**Stage 1 Cycle**) of this period. This parameter is adjusted in 1-minute increments from 1 to 10 minutes.

Stage 2 (POS 3)

Relative Temperature Stage 2

This parameter is used to establish the relative temperature at which stage 2 will activate. When the **Average Temperature** reaches **Main Set Point** + **Relative Temperature Stage 2**, stage 2 will activate. If DIPSW6 is OFF (see DIP Switches and Slide Switches Table page 38), stage 1 will shut off as long as stage 2 is activated. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

SECTION C

Stage 3 / Mist (POS 4)

Relative Temperature Stage 3 / Mist

This parameter is used to establish the relative temperature at which stage 3 / mist will activate. When the **Average Temperature** reaches **Main Set Point** + **Relative Temperature Stage 3 / Mist**, stage 3 / mist will activate according to its cycle. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

Stage 3 / Mist Cycle CYC

This parameter is used to establish the duration of the run time for the mist timer. When the **Average Temperature** is equal to or above **Main Set Point** + **Relative Temperature Stage 3 / Mist**, stage 3 / mist will be activated for a percentage (**Stage 3 / Mist Cycle**) of the 12 minute mist period. If **Stage 3 / Mist Cycle** is set to On, stage 3 / mist will be continuously activated when an activation demand occurs. If **Stage 3 / Mist Cycle** is set to OFF, stage 3 / mist will never activate regardless of the **Average Temperature**. This parameter is adjusted in 1% increments from OFF, 1 to 99%, On.

Stage 3 / Mist Humidity Shutoff rHOFF

This parameter is used to establish the humidity level at which stage 3 will shut off. When **Humidity Probe** reaches this value, stage 3 will deactivate. A fixed differential of 3RH% is used with this logic. Setting this parameter to OFF will deactivate the humidity shut off logic. This parameter is adjusted in 1RH% increments from 0 to 99RH%, OFF.

Stage 4 / Heater 2 (POS 5)

Relative Temperature Stage 4 / Heater 2

This parameter is used to establish the relative temperature at which stage 4 / heater 2 will activate. If ***Logic Out 4*** is set to COOL, stage 4 will activate when the **Average Temperature** is equal to or above **Main Set Point** + **Relative Temperature Stage 4 / Heater 2**. If ***Logic Out 4*** is set to HEAt, heater 2 will activate when the **Average Temperature** of the probes selected in ***Heater 2 Probe {1-4}*** is equal to or below **Main Set Point** + **Relative Temperature Stage 4 / Heater 2**. If DIPSW7 is OFF (see DIP Switches and Slide Switches Table page 38), stage 3 / mist will shut off as long as stage 4 is activated and ***Logic Out 4*** is set to COOL. This parameter is adjusted in 0.1° increments from -20.0°F to 20.0°F (-11.1°C to 11.1°C).

SECTION C

Heater 2 Record rEC

This parameter displays the time for which heater 2 has been activated since the MST-5C was powered up or since this parameter was last cleared. To reset this value to 0, press the SET/CLR button. The **Heater 2 Record** is displayed to the nearest minute from 0 to 99999 minutes.

Stage 5 / Heater 1 (POS 6)

Relative Temperature Stage 5 / Heater 1

This parameter is used to establish the relative temperature at which stage 5 / heater 1 will activate. If ***Logic Out 5*** is set to COOL, stage 5 will activate when the **Average Temperature** is equal to or above **Main Set Point** + **Relative Temperature Stage 5 / Heater 1**. If ***Logic Out 5*** is set to HEAt, heater 1 will activate when the average temperature of the probes selected in ***Heater 1 Probe {1-4}*** is equal to or below **Main Set Point** + **Relative Temperature Stage 5 / Heater 1**. This parameter is adjusted in 0.1° increments from -20.0°F to 20.0°F (-11.1°C to 11.1°C).

Heater 1 Record rEC

This parameter displays the time for which heater 1 has been activated since the MST-5C was powered up or since this parameter was last cleared. To reset this value to 0, press the SET/CLR button. The **Heater 1 Record** is displayed to the nearest minute from 0 to 99999 minutes.

Cool Stages (POS 7)

Cool Stage Differential

This parameter is used to establish the relative temperature at which cooling stages will deactivate. Cooling stages will deactivate when the **Average Temperature** is equal to or below **Main Set Point** + **Relative Temperature Stage {2-5} – Cool Stage Differential**. This parameter will only affect stages 4 and 5 if ***Logic Out {4-5}*** is set to COOL. Stage 1 will activate according to its timer when the **Average Temperature** is equal to or below **Main Set Point – Cool Stage Differential**. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

Heater Stages (POS 8)

Heater Stage Differential

This parameter is used to establish the relative temperature at which heater stages will deactivate. If ***Logic Out 4*** is set to HEAt, heater 2 will deactivate when the **Average Temperature** is equal to or above **Main Set Point** + **Relative Temperature Stage 4** / **Heater 2** + **Heater Stage Differential**. If ***Logic Out 5*** is set to HEAt, heater 1 will deactivate when the **Average Temperature** is equal to or above **Main Set Point** + **Relative Temperature Stage 5** / **Heater 1** + **Heater Stage Differential**. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

Clock / Growth Day (POS 9)

Clock

This parameter gives the time of day in the format chosen in ***Clock Format***. To adjust the time of day, press the SET/CLR button. At this moment, the minutes will be adjustable. Press the F2 button to toggle between hour and minute adjustments. Press the SET/CLR button once again or change parameters with the parameter selection knob once the adjustments are finished.

Growth Day g dAY

This parameter is use to adjust the growth day of the MST-5C controller. If this day is not set to OFF, it will determine the value of the **Main Set Point** (if ***MSP Curve*** is set to On) according to the day and value points of the growth curve. The **Growth Day** is adjusted in 1-day increments from OFF, day -10 to day 365.

Low Temperature Record And Alarm (POS 10)

Low Average Temperature Record

This parameter displays the lowest value reached by the **Average Temperature** since the MST-5C was powered up or since this parameter was last cleared. To reset this value to the actual **Average Temperature**, press the SET/CLR button. The **Low Average Temperature Record** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

Low Alarm Relative Temperature AL LO

This parameter is used to establish the relative temperature at which a low temperature alarm condition will occur. When **Average Temperature** is below the **Main Set Point** + **Low Alarm Relative Temperature**, a low temperature alarm condition will occur. This parameter is adjusted in 0.1° increments from -40.0°F to -0.5°F (-22.2°C to -0.3°C).

Alarm Code ACODE

This setting displays the alarm condition. This parameter displays 0 when no errors have been detected. This indicates that the controller is operating properly. The alarm LED () on the faceplate will be lit up if an alarm code is actually displayed. The alarm code refers to the following table.

Alarm Code List:

Alarm Code	Description
1	Average Temperature Too Low
2	Average Temperature Too High
3	Sensor 1 Defective
4	Sensor 2 Defective
5	Sensor 3 Defective
6	Sensor 4 Defective
7	Outside Sensor Defective
8	Sensor 1 Gap Exceeds Limit
9	Sensor 2 Gap Exceeds Limit
10	Sensor 3 Gap Exceeds Limit
11	Sensor 4 Gap Exceeds Limit
12	Heater 1 Has No Probes Assigned
13	Heater 2 Has No Probes Assigned
101	The controller has reset 10 times and each reset was less than 15 minutes apart from the last one
102	If this alarm code appears, contact your distributor
103	If this alarm code appears, contact your distributor

High Temperature Record And Alarm (POS 11)

High Average Temperature Record

This parameter displays the highest value reached by the **Average Temperature** since the MST-5C was powered up or since this parameter was last cleared. To reset this value to the actual **Average Temperature**, press the SET/CLR button. The **High Average Temperature Record** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

High Alarm Relative Temperature AL HI

This parameter is used to establish the relative temperature at which a high temperature alarm condition will occur. When **Average Temperature** is above the **Main Set Point** + **High Alarm Relative Temperature**, a high temperature alarm condition will occur. This limit may be affected by the **Outside Probe** if that probe is used and the ***Relative Outside Temperature Alarm*** is set to a value other than OFF. This parameter is adjusted in 0.1° increments from 0.5°F to 40.0°F (0.3°C to 22.2°C).

Critical High Alarm CrIt

This parameter is used to establish the temperature set point at which a high temperature alarm condition will occur regardless of the **Outside Probe** reading. When the **Average Temperature** is above this parameter, a high temperature alarm condition will occur. Setting this parameter to OFF will deactivate the critical high alarm check. This parameter is adjusted in 0.1° increments from -40.0°F to 119.9°F (-40.0°C to 48.8°C), OFF.

Average / Probes (POS 12)

Average Temperature

This parameter displays the actual average temperature of all activated inside probes. The average is made from the inside temperature probes whose DIP SWITCH is set to the ON position (see DIP Switches and Slide Switches Table page 38). The **Average Temperature** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

Probe 1 P :1

This parameter displays the actual probe 1 temperature. The **Probe 1** temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

Probe 2 P :2

This parameter displays the actual probe 2 temperature. This parameter will appear only if DIPSW2 is set to the ON position (see DIP Switches and Slide Switches Table page 38). The **Probe 2** temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

Probe 3 P :3

This parameter displays the actual probe 3 temperature. This parameter will appear only if DIPSW3 is set to the ON position (see DIP Switches and Slide Switches Table page 38). The **Probe 3** temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

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Probe 4 P :4

This parameter displays the actual probe 4 temperature. This parameter will appear only if DIPSW4 is set to the ON position and DIPSW5 is set to the OFF position (see DIP Switches and Slide Switches Table page 38). The **Probe 4** temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

Outside Probe P :OUt

This parameter displays the actual outside probe temperature. This parameter will appear only if DIPSW4 and DIPSW5 are both set to the ON position (see DIP Switches and Slide Switches Table page 38). This reading may increase the high temperature alarm threshold. The **Outside Probe** temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

Humidity Probe P :rH

This parameter displays the actual humidity probe readout. This parameter will appear only if DIPSW8 is set to the ON position (see DIP Switches and Slide Switches Table page 38). This parameter may display Err if the humidity probe is defective or unplugged. Otherwise, the **Humidity Probe** reading is displayed to the nearest 1RH% from 0RH% to 100RH%.

System Mode Settings

(POS 1)

MSP Curve CSEtP

This parameter is used to activate or deactivate the growth curve function of the **Main Set Point**. If this parameter is set to On and the **Growth Day** is not OFF, the **Main Set Point** will follow its day and value points and will no longer be adjustable. See the Additional information on parameters section for more information on the growth curve. If this parameter is set to OFF, the **Main Set Point** will not be affected by its growth curve.

(POS 5)

Logic Out 4 OUt 4

This parameter is used to select the mode in which output 4 will operate. If this parameter is set to COOL, output 4 will activate when the **Average Temperature** is high. If this parameter is set to HEAt, output 4 will activate when the average temperature of the probes selected in ***Probe {1-4} Heater 2*** is low.

SECTION C

Probe 1 Heater 2 P1:Ht2

This parameter is used to assign **Probe 1** to the temperature heater 2 will follow. If this parameter is set to On, **Probe 1** will be averaged with the other selected probes to compose the temperature heater 2 will follow. If this parameter is set to OFF, **Probe 1** will not be included in the temperature heater 2 will follow. This parameter will appear only if ***Logic Out 4*** is set to HEAt.

Probe 2 Heater 2 P2:Ht2

This parameter is used to assign **Probe 2** to the temperature heater 2 will follow. If this parameter is set to On, **Probe 2** will be averaged with the other selected probes to compose the temperature heater 2 will follow. If this parameter is set to OFF, **Probe 2** will not be included in the temperature heater 2 will follow. This parameter will appear only if ***Logic Out 4*** is set to HEAt and DIPSW2 is set to the ON position (see DIP Switches and Slide Switches Table page 38).

Probe 3 Heater 2 P3:Ht2

This parameter is used to assign **Probe 3** to the temperature heater 2 will follow. If this parameter is set to On, **Probe 3** will be averaged with the other selected probes to compose the temperature heater 2 will follow. If this parameter is set to OFF, **Probe 3** will not be included in the temperature heater 2 will follow. This parameter will appear only if ***Logic Out 4*** is set to HEAt and DIPSW3 is set to the ON position (see DIP Switches and Slide Switches Table page 38).

Probe 4 Heater 2 P4:Ht2

This parameter is used to assign **Probe 4** to the temperature heater 2 will follow. If this parameter is set to On, **Probe 4** will be averaged with the other selected probes to compose the temperature heater 2 will follow. If this parameter is set to OFF, **Probe 4** will not be included in the temperature heater 2 will follow. This parameter will appear only if ***Logic Out 4*** is set to HEAt, DIPSW4 is set to the ON position and DIPSW5 is set to the OFF position (see DIP Switches and Slide Switches Table page 38).

(POS 6)

Logic Out 5 OUt 5

This parameter is used to select the mode in which output 5 will operate. If this parameter is set to COOL, output 5 will activate when the **Average Temperature** is high. If this parameter is set to HEAt, output 5 will activate when the average temperature of the probes selected in ***Probe {1-4} Heater 1*** is low.

Probe 1 Heater 1 P1:Ht 1

This parameter is used to assign **Probe 1** to the temperature heater 1 will follow. If this parameter is set to On, **Probe 1** will be averaged with the other selected probes to compose the temperature heater 1 will follow. If this parameter is set to OFF, **Probe 1** will not be included in the temperature heater 1 will follow. This parameter will appear only if ***Logic Out 5*** is set to HEAt.

Probe 2 Heater 1 P2:Ht 1

This parameter is used to assign **Probe 2** to the temperature heater 1 will follow. If this parameter is set to On, **Probe 2** will be averaged with the other selected probes to compose the temperature heater 1 will follow. If this parameter is set to OFF, **Probe 2** will not be included in the temperature heater 1 will follow. This parameter will appear only if ***Logic Out 5*** is set to HEAt and DIPSW2 is set to the ON position (see DIP Switches and Slide Switches Table page 38).

Probe 3 Heater 1 P3:Ht 1

This parameter is used to assign **Probe 3** to the temperature heater 1 will follow. If this parameter is set to On, **Probe 3** will be averaged with the other selected probes to compose the temperature heater 1 will follow. If this parameter is set to OFF, **Probe 3** will not be included in the temperature heater 1 will follow. This parameter will appear only if ***Logic Out 5*** is set to HEAt and DIPSW3 is set to the ON position (see DIP Switches and Slide Switches Table page 38).

Probe 4 Heater 1 P4:Ht 1

This parameter is used to assign **Probe 4** to the temperature heater 1 will follow. If this parameter is set to On, **Probe 4** will be averaged with the other selected probes to compose the temperature heater 1 will follow. If this parameter is set to OFF, **Probe 4** will not be included in the temperature heater 1 will follow. This parameter will appear only if ***Logic Out 5*** is set to HEAt, DIPSW4 is set to the ON position and DIPSW5 is set to the OFF position (see DIP Switches and Slide Switches Table page 38).

(POS 7)

Load Delay L dEL

This parameter is used to set the load delay that will be used by all ON/OFF outputs other than heaters. The load delay prevents any two non-heating stages from activating at the same time. The amount of time adjusted for the load delay will separate the activation of two or more non-heating relay stages. This parameter is adjusted in 1-second increments from OFF, 1 to 60 seconds.

(POS 8)

Gap Between Probes Alarm GAP P

This parameter is used to establish the maximum temperature difference tolerated between an activated inside temperature probe and the temperature calculation that the probe is part of. If this temperature difference is greater than this parameter, the alarm will sound. The probe with the biggest gap will be eliminated and then another check will be made to verify if another probe exceeds the maximum temperature gap allowed and eliminated it. When two or fewer probes remain in the temperature calculation, ***Gap Between Probes Alarm*** will no longer be checked and will no longer be visible. All probes eliminated this way will be excluded from all temperature calculations. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

Relative Outside Temperature Alarm OUTAL

This parameter is used to establish the temperature that will be added to the **Outside Probe** to create the high alarm threshold. When the **Outside Probe** is above the **Main Set Point**, the high alarm condition will occur if the **Average Temperature** is above **Outside Probe** + ***Relative Outside Temperature Alarm***. Setting this parameter to OFF will deactivate the outside temperature's influence on the high alarm threshold. This parameter is adjusted in 0.1° increments from 0.5°F to 40.0°F, OFF (0.3°C to 22.2°C, OFF).

(POS 9)

Clock Format Hr Fr

This parameter is used to set the format in which the time of day will be displayed. If this parameter is set to 24H, the **Clock** parameter will be displayed in the 24-hour format. If this parameter is set to A-P, the **Clock** parameter will be displayed in the AM/PM format.

Display Language LANG

This parameter is used to select the language used by the MST-5C. If this parameter is set to ENG, the configuration will use the English language. If this parameter is set to FRA, the configuration will use the French language.

(POS 10)

RF Channel rF CH

This parameter is used to select one of the 16 frequencies of the WiFarm network or deactivates wireless communication mode. If this parameter is set to OFF, other wireless communication parameters will disappear. This parameter can be adjusted to OFF, 1 to 16.

SECTION C

RF Network rF nt

This parameter is used to identify a WiFarm network. A WiFarm network is formed when the ***RF Network*** is set to the same value as the ***RF Address*** of the RF card of the controller designated to be the network master (ex. WebGate in most installations). Other controllers can join the existing network by adjusting ***RF Network*** to the ***RF Address*** of that same network. This parameter is adjusted digit-by-digit, allowing faster modification for very high numbers. Press the SET/CLR button so that the parameter's first digit blinks. Modify that digit using the value setting button. Press the F2 button to select the next digit. Press the SET/CLR button once again or move the parameter dial to end parameter modification. This parameter can be adjusted to any value from 0 to 32767.

RF Address rF Ad

This parameter displays the number (address) associated to the **RF-IN** card inserted in the controller. A unique number is given to each **RF-IN** card of the WiFarm network. There is a unique ***RF Address*** associated to each **RF-IN** card. The ***RF Address*** also appears on the sticker present on the **RF-IN**. The address can be any value from 0 to 32767.

Unit ID U Id

This parameter is used to select the identification number that will be used when communicating with the remote access software. This parameter may be adjusted to any value from 1 to 250.

Tech Param Display tPdIS

This parameter is reserved for the manufacturer's technical support personnel.

Tech Param Result tPrES

This parameter is reserved for the manufacturer's technical support personnel.

Communication Filter FILtr

This parameter is reserved for the manufacturer's technical support personnel.

(POS 11)

Configuration Version CONF

This parameter displays the version of the configuration actually used.

Processor Version Proc

This parameter displays the version of the processor actually used.

(POS 12)

System Parameters SYStEm

This parameter indicates that the MST-5C is in system parameter mode.

Parameter Table

Normal Mode Settings (Accessible when SW2 is set to OFF)

	Parameters	Default	Range
(POS 12) AVERAGE/PROBES 	Average Temperature	—	-58.0 to 140.0°F (-50.0 to 60.0°C)
	[F2] – P :1 – Probe 1	—	
	[F2] – P :2 – Probe 2	—	
	[F2] – P :3 – Probe 3	—	
	[F2] – P :4 – Probe 4	—	
	[F2] – P :OUt – Outside Probe	—	
	[F2] – P :rH – Humidity Probe	—	0 to 100RH%
(POS 1) SET POINT 	Main Set Point (MSP) (4-point curve)	67.0°F (19.4°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
(POS 2) STAGE 1  TIMER	Stage 1 Cycle	25%	OFF, 1 to 99%, ON
	PEr – Stage 1 Period	5min	1 to 10 min
(POS 3) STAGE 2 	Relative Temperature Stage 2	4.0°F (2.2°C)	0.5 to 20.0°F (0.3 to 11.1°C)
(POS 4) STAGE 3 / MIST 	Relative Temperature Stage 3 / Mist	6.0°F (3.3°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	CYC – Stage 3 / Mist Cycle	25%	OFF, 1 to 99%, ON
	rHOFF – Stage 3 / Mist Humidity Shutoff	85RH%	0 to 99RH%, OFF
(POS 5) STAGE 4 / HEATER 2 	Relative Temperature Stage 4 / Heater 2	8.0°F (4.4°C)	-20.0 to 20.0°F (-11.1 to 11.1°C)
	[F2] – rEC – Heater 2 Record	—	0 to 99999 min
(POS 6) STAGE 5 / HEATER 1 	Relative Temperature Stage 5 / Heater 1	10.0°F (5.6°C)	-20.0 to 20.0°F (-11.1 to 11.1°C)
	[F2] – rEC – Heater 1 Record	—	0 to 99999 min
(POS 7) COOL STAGES 	dIFF – Cool Stage Differential	2.0°F (1.1°C)	0.5 to 20.0°F (0.3 to 11.1°C)

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(POS 8) HEATER STAGES 	Heater Stage Differential	2.0°F (1.1°C)	0.5 to 20.0°F (0.3 to 11.1°C)
(POS 9) CLOCK / GROWTH DAY 	Clock	—	—
	[F2] – 9 dAY – Growth Day	OFF	OFF, -10 to 365
(POS 10) LOW TEMPERATURE RECORD and ALARM 	Low Average Temperature Record	—	-58.0 to 140.0°F (-50.0 to 60.0°C)
	[F2] – AL LO – Low Alarm Relative Temperature	-10.0°F (-5.6°C)	-40.0 to -0.5°F (-22.2 to -0.3°C)
	[F2] – ACOdE – Alarm Code	—	—
(POS 11) HIGH TEMPERATURE RECORD and ALARM 	High Average Temperature Record	—	-58.0 to 140.0°F (-50.0 to 60.0°C)
	[F2] – AL HI – High Alarm Relative Temperature	12.0°F (6.7°C)	0.5 to 40.0°F (0.3 to 22.2°C)
	[F2] – Crit – Critical High Alarm	100.0°F (37.8°C)	-40.0 to 119.9°F, OFF (-40.0 to 48.8°C, OFF)

SECTION C

System Mode Settings (Accessible when SW2 is set to ON)

	Parameters	Default	Range
(POS 1)	CSEtP – MSP Curve	ON	ON/OFF
(POS 2)	—	—	—
(POS 3)	—	—	—
(POS 4)	—	—	—
(POS 5)	Out 4 – Logic Out 4	COOL	HEAT/COOL
	[F2] – P1:Ht1 – Probe 1 Heater 1	ON	ON/OFF
	[F2] – P2:Ht1 – Probe 2 Heater 1	ON	
	[F2] – P3:Ht1 – Probe 3 Heater 1	ON	
	[F2] – P4:Ht1 – Probe 4 Heater 1	ON	
(POS 6)	Out 5 – Logic Out 5	COOL	HEAT/COOL
	[F2] – P1:Ht2 – Probe 1 Heater 2	ON	ON/OFF
	[F2] – P2:Ht2 – Probe 2 Heater 2	ON	
	[F2] – P3:Ht2 – Probe 3 Heater 2	ON	
	[F2] – P4:Ht2 – Probe 4 Heater 2	ON	
(POS 7)	L dEL – Load Delay	OFF	OFF, 1 to 60 sec
(POS 8)	GAP P – Gap Between Probes Alarm	3.0°F (1.7°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	[F2] – OUtAL – Relative Outside Temperature Alarm	12.0°F (6.7°C)	0.5 to 40.0°F, OFF (0.3 to 22.2°C, OFF)
(POS 9)	Hr Fr – Clock Format	24hr	AM-PM / 24hr
	[F2] – LAnG – Display Language	Eng	Eng / Fra
(POS 10)	rF CH – RF Channel	OFF	OFF, 1 to 16
	[F2] – rF nt – RF Network	0	0 to 32767
	[F2] – rF Ad – RF Address	—	0 to 32767
	[F2] – U Id – Unit ID	1	1 to 250
	[F2] – tPdIS – Tech Param Display	1	OFF, 1 to 12
	[F2] – tPrES – Tech Param Result	—	—
	[F2] – FILtr – Communication Filter	300 sec	0 to 300 sec
(POS 11)	COnF – Configuration Version	—	—
	[F2] – Proc – Processor Version	—	—
(POS 12)	SYStM – System Parameters	SYSTM	SYSTM

SECTION C

DIP Switches and Slide Switches Table

	Switches	Default	Settings
SLIDE SWITCHES	**(SW1)** – Parameters Lock	OFF (Unlock)	ON = Lock / OFF = Unlock
	(SW2) – System Mode Parameters	OFF (Normal)	ON = System / OFF = Normal
DIP SWITCHES	**(DIPSW1)** – Temperature Unit	OFF (˚F)	ON = ˚C / OFF = ˚F
	(DIPSW2) – Probe 2	OFF	ON/OFF
	(DIPSW3) – Probe 3	OFF	ON/OFF
	(DIPSW4) – Probe 4	OFF	ON/OFF
	(DIPSW5) – Probe 4 Inside/Out.	OFF (Inside)	ON = Outside / OFF = Inside
	(DIPSW6) – Stages 1&2 Logic	OFF (Double Speed)	ON = Single Speed OFF = Double Speed
	(DIPSW7) – Stages 3&4 Logic	OFF (Double Speed)	ON = Single Speed OFF = Double Speed
	(DIPSW8) – Humidity	OFF	ON/OFF

Motor Curve Table

TYPE OF MOTOR				
CURVE	**BRAND**	**MODEL**	**VOLTAGE**	**HEIGHT**
1	Multifan	4E40	230 V.	16"
2	Flex	FM0025	230 V.	18"
2	Multifan	2E20	230 V.	8"
2	Multifan	4E35	230 V.	14"
2	Multifan	4E50	230 V.	20"
2	Multifan	AF24M'E	230 V.	24"
2	Multifan	6E63	230 V.	24"
2	Multifan	6E71	230 V.	28"
2	Multifan	8E92	230 V.	36"
2	Ziehl		230 V.	
3	Flex	FM0024	230 V.	14"
3	Flex	FM0024	230 V.	16"
3	Flex	FM0026	230 V.	24"
3	Multifan	2E30	230 V.	12"
3	Multifan	4E45	230 V.	18"
3	Multifan	6E56	230 V.	22"
3	Multifan/AF	AF36M	230 V.	36"
3	Aerotech-F	AT242	230 V.	24"
4	Multifan	2E25	230 V.	10"
4	Marathon 1/4HP		230 V.	16"
4	Marathon 1/3HP		230 V.	18"
5	GE Motor	5KCP39…	230 V.	12"
5	Leeson 1/4HP	AF12L	230 V.	12"
5	GE Motor	5KCP39…	230 V.	14"
5	Emerson	K55HXJ…	230 V.	14"
6	Oversized motors			
7	Flex	FM0024	230 V.	12"
7	Flex	FM0026	230 V.	20"
7	Multifan	4E30	230 V.	12"
7	Multifan	2E35	230 V.	14"
8	Multifan	4E25	230 V.	10"

Additional information on parameters

The following is a more detailed description of general-purpose parameters.

Time of Day (time clock)

The MST-5C comes with its own integrated time clock. This feature is appreciated by users who want to know the current time of day. Note that if a power failure occurs, the clock will not run and will start back at the time the power failure occurred. However, the time clock's main purpose is to allow ramping to operate.

The following instructions show how to change the time of day on the control:

The time is displayed in HH:MM format and does not flash. Press the SET/CLR button to access clock adjustment mode. At this moment, the minutes will flash and be adjustable. Press the F2 button to toggle between hour and minute adjustments. Press the SET/CLR button or change the parameter selection knob position to exit the clock adjustment mode.

Growth Day

The **Growth Day** plays an active part in the ramping settings. With this parameter, users can program the growth day of a growth curve. Day by day, the growth calendar's value will increase by increment of 1, from a minimum setting of -10 to a maximum of 365.

Ramping

The ramping parameter will automatically calculate and change its value every hour. The amount by which the parameter is changed is determined by the ramping curve.

Before the first point, the parameter takes the value entered for the first point. For example, point 1 is at 80°F at day #10. From day #1 to day #10, the value will be 80°F.

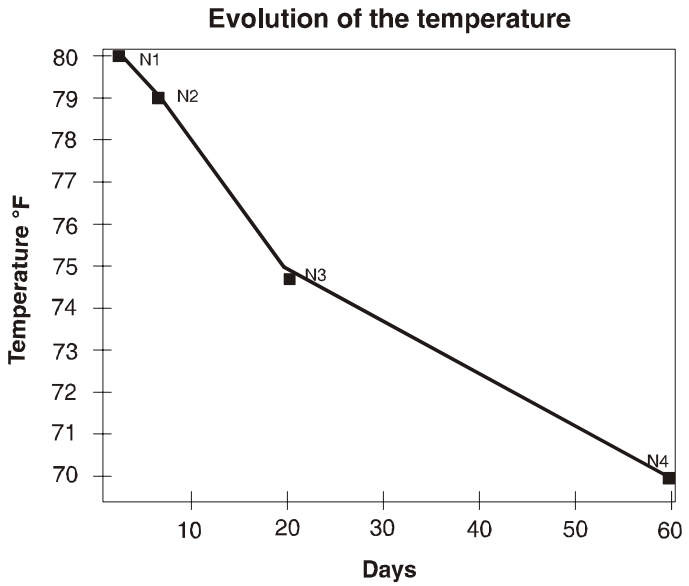
After the last point, the curve remains operational. While it continues to count days, the set point does not flash and cannot be changed. For example, the last point (day #40) is set at 70°F. After day #40 the parameter remains at 70°F, until ramping is deactivated, by setting the Growth Day to OFF.

The following instructions indicate how to set the Growth Day of a ramping curve:

Select the ramping parameter (ex: Main Set Point, etc.). Make sure the Growth Day is set to OFF. Press the SET/CLR button. At this moment, the first day of the growth curve will be displayed.

When a day is displayed, pressing the F2 button will display the associated value. When a value is displayed, pressing the F2 button will display the next day.

The following graph shows a typical ramping curve for the temperature.

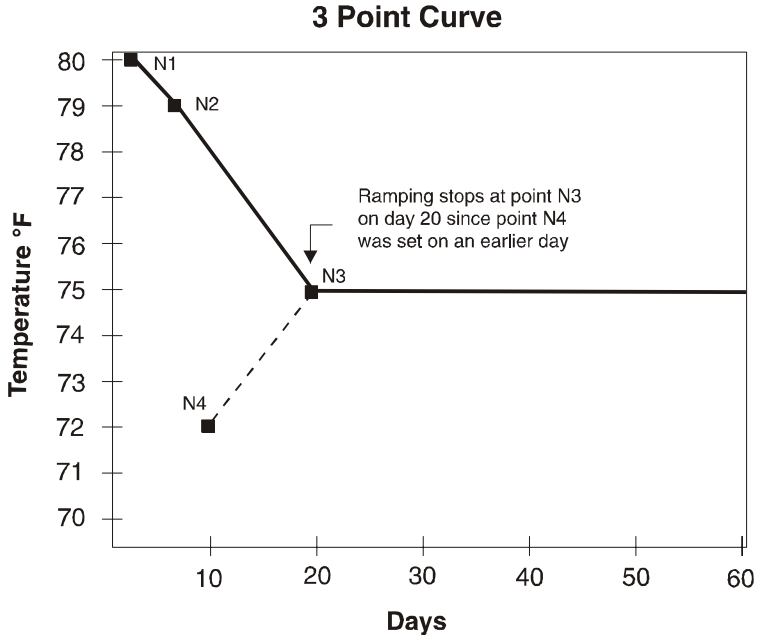


This four points curve may be entered as follows:

1. Make sure the Growth Day is OFF.
2. Select the Ramping parameter with the parameter selection knob and the F2 button.
3. The value on the LED display should be flashing.
4. Press the SET/CLR button. At this moment, the LED display will show 01:dAY (the first day point of the curve).
5. Set this value to 1 using the adjustment knob.
6. Press the F2 button. The LED display will show 01: PE (the first value point of the curve).
7. You may now enter the first temperature value for curve (80°F) using the adjustment knob.
8. Press the F2 button. At this moment, the next day will be displayed and adjustable.
9. Repeat steps 5 to 8 for the rest of the curve points. In this example, the days are 1, 8, 20 and 60 and the value points are 80°F, 79°F, 75°F and 70°F.
10. Once the last value point is entered, press the SET/CLR button. You should now be back to a point where the LED display is flashing a temperature value.

11. The whole ramping curve is now set. To enable temperature ramping, simply set the Growth Day to any day value and the MST-5C will follow the curve.

Ramping is interrupted when days fail to respect a chronological order or when two consecutive points have the same day. This characteristic may be useful to users unwilling to use all 4 "preset" ramping points. The following illustration shows how users can stop the curve without entering the last point.



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Limited Warranty

The manufactured equipment and supplied components have gone through rigorous inspection to assure optimal quality of product and reliability. Individual controls are factory tested under load, however the possibility of equipment failure and/or malfunction may still exist.

For service, contact your local retailer or supplier. The warranty period shall be for two years from manufacturing date. Proof of purchase is required for warranty validation.

In all cases, the warranty shall apply only to defects in workmanship and specifically exclude any damage caused by over-voltage, short circuit, misuse, acts of vandalism, lightning, fortuitous events, acts of God, flood, fire, hail or any other natural disaster. Any unauthorized work, modification or repair on this product automatically voids the warranty and disclaims the manufacturer from all responsibility.

The manufacturer assumes only those obligations set forth herein, excluding all other warranties or obligations. This warranty stipulates that in all cases the manufacturer shall be liable only for the supply of replacement parts or goods and shall not be liable for any personal injury, damages, loss of profits, interrupted operations, fines for infringement of the law or damages to the production of the PURCHASER and the PURCHASER shall take up the defense and hold the manufacturer faultless regarding any legal or extra legal proceedings, notice, or claim by the customer or by a third party, and regarding any legal and extra legal expenses and fees brought forward on by such damages.

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